Communicable Disease Report

Hawai'i Department of Health
Communicable Disease Division

http://www.state.hi.us/doh/resource/comm_dis/cdr.html **November/December 2004**

Local Availability of Influenza Vaccines

Vaccine Supply and Priorities

The Hawai`i State Department of Health (DOH) is holding public influenza vaccination clinics statewide for the chronically ill. HMSA has donated its flu vaccine originally intended for its own clinics. In total, the DOH (with a 7,000 dose donation of vaccine by HMSA) has 10,000 doses of influenza vaccine that will be made available for the chronically ill.

The limited influenza vaccine supply this flu season is due to production problems at Chiron Corp., the world's second-leading flu vaccine supplier, that resulted in the British government suspending their manufacturing license for several months. This action halved the expected 100 million doses of flu vaccine available in the U.S. for the 2004-2005 influenza season. Private providers in Hawaii received approximately 230,000 doses of flu vaccine this year. Much of this arrived before the shortage was announced so some vaccine may have gone to non-risk groups.

Priorities for the use of publicly held vaccines were decided by a team of physicians from a variety of specialties and representatives from hospitals, healthcare organizations, long-term care facilities and the military. The determination was made that those at the highest risk from serious complications from influenza are the elderly who reside in long term care facilities and individuals with chronic illness regardless of age.

Clinics will be held beginning November 15 and run through mid- December. Physicians should only refer patients who meet the following CDC criteria:

- Cardiovascular disease
- Pulmonary disease, including asthma
- Metabolic disease, including diabetes mellitus
- Renal disease
- Hemoglobinopathy
- Immunosuppression, including that resulting from medication

"Our administration's highest priority this year is to protect the most vulnerable, including the frail and elderly who are in long-term care facilities, as well as chronically ill elderly, adults and children. We appreciate the assistance of HMSA and physicians statewide in helping to protect those most at risk from the flu this year," said Health Director Chiyome Fukino, M.D.

Hawai`i residents of any age who have a chronic illness and who have been unable to get an influenza vaccination have been directed to contact their physicians. Physicians refer their chronically ill patients by completing a Flu Vaccine Order Form 2004-05 and request an appointment for the patient at one of the clinics. The patient is required to bring the completed and signed form and personal identification to the clinic. There is no cost to the patient for the influenza vaccination.

Influenza and Pneumococcal Vaccination Coverage in Hawai`i

Vaccination of persons at risk for complications from influenza and pneumococcal disease is a key public health strategy for preventing morbidity and mortality. Risk factors include older age and chronic medical conditions. During the 1990–1999 influenza seasons, more than 32,000 deaths each year among persons over 65 years were attributed to complications from influenza infection. National health objectives for 2010 call for 90% influenza and pneumococcal vaccination coverage among persons over 65 years and 60% coverage among non-institutionalized persons aged 18-64 years who have chronic medical conditions (e.g., diabetes or asthma).

To estimate influenza and pneumococcal vaccination coverage, the CDC analyzed data from the 2003 Behavioral

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Risk Factor Surveillance System (BRFSS) survey. BRFSS is a state-based, random-digit—dialed telephone survey of the U.S. civilian, non-institutionalized population aged >18 years. All 50 states, the District of Columbia, and three U.S. territories participate in the survey. BRFSS data is self-reported and not validated. BRFSS vaccination estimates are consistently higher than estimates from the National Health Interview Survey, a household-based, face-to-face interview survey. Also BRFSS does not systematically assess other medical conditions (besides asthma and diabetes) for which influenza and pneumococcal vaccines are recommended.

In 2003, respondents over 65 years reported influenza vaccination coverage levels during the preceding 12 months ranging from 34.9% to 80.3% with a median of 69.9% (see Table 1). Among respondents over 65 years reporting ever having received pneumococcal vaccine ranged from 31.6% to 73.0%, with a median of 64.2%. Hawai`i's rates were 71.6% for influenza vaccination (a slight, non significant decrease from 2002) and 69.4% for pneumococcal vaccination (a significant increase of almost 10% from 2002). Both figures are above the national medians.

Table 1. Percentage of persons aged ≥65 years who reported receiving influenza vaccine during the preceding year and receiving pneumococcal vaccine ever □ Behavioral Risk Factor Surveillance System, United States and Hawai'i 2003

Location	Influenza vaccination among adults aged ≥65 years		Pneumococcal vaccination among adults aged ≥65 years	
United States (median)	69.9%	Range: 34.9-80.3%	64.2%	Range: 31.6-73.0%
Hawai`i	71.6±3.1[a] %	- 2.3% change[b]	69.4±3.7 [a] %	+ 9.9%* change[b]

[a] 95% Confidence Interval
[b] Change in immunization coverage from 2002 to 2003 * Significant at $p < .05$

Table 2. Percentage of persons aged 18-64 years with asthma or diabetes who reported receiving influenza vaccine during the preceding year ñ Behavioral Risk Factor Surveillance System, United States and Hawai`i 2003

Location	Influenza vaccination among adults aged 18-64 years with asthma		Influenza vaccination among adults aged 18-64 years with diabetes	
United States (median)	34.0%	Range: 22.5-46.6%	49.0%	Range: 26.5-62.4%
Hawai`I	42.0 %	CI: 33.8-50.1[a] %	57.2 %	CI: 48.6-66.3 [a] %

[a] CI = 95% Confidence Interval

Influenza vaccination coverage levels during the preceding 12 months ranged from 22.5% to 46.6% with a median of 34.0% for respondents aged 18-64 years with asthma (see Table 2). Influenza vaccination coverage levels ranged from 26.5 to 62.4%, with a median of 49.0% for respondents aged 18-64 years with diabetes. Hawai`i's rates were 42.0% for influenza vaccination for those with asthma and 57.2% for those with diabetes. Both figures are above the national medians.

Hawai`i's influenza and pneumococcal vaccination coverage levels remains below the national health objectives for 2010. Though progress is being made with increasing pneumococcal vaccination coverage, influenza vaccination coverage seems to have plateaued. At 57.2%, Hawaii has almost reached the 2010 national health objective of 60% influenza vaccination coverage among non-institutionalized persons aged 18—64 years who have risk factors for diabetes. However, those with asthma still need to increase by 18% to meet the objective.

Nichol and Zimmerman in the Archives of Internal Medicine (2001) reported that a substantial proportion of generalist and sub-specialist physicians did not strongly recommend influenza and pneumococcal vaccinations to their patients who are elderly or at high risk. Low vaccination rates among persons with high-risk conditions might reflect the challenge of targeting patients for vaccinations on the basis of high-risk conditions instead of age.

Although a majority of patients seen by sub-specialists might be those who most need vaccination, sub-specialists might not perceive the provision of preventive services as their role. Primary care physicians and sub-specialists should work together to ensure that persons at high risk receive appropriate vaccinations. In addition, the CDC Task Force on Community Preventive Services recommends strategies to increase awareness among young adults of the need for vaccinations. Diabetes and asthma care programs should emphasize increasing this awareness.

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Worldwide Avian Influenza – The Current situation

Since mid-December 2003, a growing number of Asian countries have reported outbreaks of highly pathogenic avian influenza in chickens and ducks. Infections in several species of wild birds, pigs and tigers have also been reported. Particularly alarming, in terms of risks for human health, is the detection of a highly pathogenic strain, known as "H5N1", as the cause of most of these outbreaks. H5N1 has jumped the species barrier, causing severe disease in humans (see table).

Table 1

Cumulative Number of Laboratory Confirmed Human Cases of H5N1 Influenza*

Country	Total cases	Deaths (Fatality Rate %)
Thailand	17	12 (71)
Viet Nam	27	20 (74)
Total	44	32 (73)

* Since January 28, 2004

Avian and human influenza viruses can exchange genes when a person is simultaneously infected with viruses from both species. This process of gene swapping inside the human body can give rise to a completely new subtype of the influenza virus to which few, if any, humans would have natural immunity. Moreover, existing vaccines, which are developed each year to match presently circulating strains and protect humans during seasonal epidemics, would not be effective against a completely new influenza virus.

If the new virus contains sufficient human genes, transmission directly from one person to another (instead of from birds to humans only) can occur. If this happens, the conditions for the start of a new influenza pandemic will have been met. Most alarming would be a situation in which person-to-person transmission resulted in successive generations of severe disease with high mortality.

Human-to-human transmission

In Thailand, the Ministry of Health announced possible human-to-human transmission in a family cluster. Thai officials have concluded that the mother could have acquired the infection either from some environmental source or while caring for her daughter, and that this represents a probable case of human-to-human transmission. Evidence to date indicates that transmission of the virus among humans has been limited to family members and that no wider transmission in the community has occurred.

Drugs available for prevention and treatment

Currently available vaccines will not protect against disease caused by the H5N1 strain in humans. However, two classes of drugs are available for prevention and treatment. These are the M2 inhibitors (amantadine and rimantadine) and the neuraminidase inhibitors (oseltamivir and zanimivir). These drugs have been licensed for the prevention and treatment of human influenza and are thought to be effective regardless of the causative strain.

However, initial analysis of viruses isolated from the recently fatal cases in Viet Nam indicates that the viruses are resistant to the M2 inhibitors. Further testing is under way to confirm the resistance of amantadine. Network laboratories are also conducting studies to confirm the effectiveness of neuraminidase inhibitors against the current H5N1 strains.

Conclusions

The ongoing widespread epizootic of highly pathogenic H5N1 viruses in Asia remains a major concern. Since December 2003, nine Asian countries have reported H5N1 poultry outbreaks, with human cases reported from two of these countries. No evidence of sustained person-to-person transmission has been identified to date, although a probable instance of limited person-to-person transmission in a family cluster was identified recently in Thailand. The CDC and the DOH continues to recommend enhanced surveillance for suspected H5N1 cases among travelers with severe unexplained respiratory illness returning from H5N1-affected countries. Additional information about avian influenza is available at: http://www.phppo.cdc.gov/han/archivesys/viewmsgv.asp?alertnum=00209

Submitted by Steven Terrell-Perica, M.A., M.P.H., M.P.A., CDC Public Health Advisor, Immunization Branch, Disease Outbreak and Control Division.

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Medicare increases payments for influenza, pneumococcal and other vaccinations

Medicare recently announced new preventive benefits and physician payment increases that will dramatically increase payments for influenza and other vaccinations. For example, payments for administering the influenza vaccine will rise from $8 to $18. Physicians can also be paid for injections and vaccinations, even when performed on the same day as other Medicare-covered services. The final rule was published in the November 15, 2004 Federal Register and will become effective January 1, 2005.

For more information, please call the DOH Immunization Branch at (808) 586-8300 in Honolulu.

Submitted by Steven Terrell-Perica, M.A., M.P.H., M.P.A., CDC Public Health Advisor, Immunization Branch, Disease Outbreak and Control Division

Hawaii Girds Itself for Arrival of West Nile Virus

Health officials and wildlife biologists hope vigilant surveillance and rapid response will prevent infected mosquitoes from establishing a beachhead

On 24 September, officials at the Hawaii Department of Health (DOH) got the news that they'd been dreading for several years: An island bird had tested positive for West Nile virus. Although infected birds are now routine across the continental United States, Hawaii has so far been spared. And it is fighting to stay that way. Immediately after the discovery, the health department launched an assault; all night long a truck fogged the Kahului Airport on Maui, where the bird had been caught, with insecticide. Additional crews with backpack sprayers doused off-road sites to kill any potentially infected mosquitoes.

State officials breathed a sigh of relief the following week when the case turned out to be a false positive. But they aren't letting down their guard. Should West Nile become established on the islands, virus-ridden mosquitoes could spread the disease year round. And many of the state's remaining endemic birds, already hammered by avian malaria and pox, might go extinct. "The effects could be disastrous," says ornithologist Peter Marra of the Smithsonian Environmental Research Center in Edgewater, Maryland.

To avert such a catastrophe, researchers have been scrambling to improve surveillance and eradication plans. Observers on other Pacific islands, which also face a similar threat, are hoping to learn from Hawaii's efforts to stamp out the virus as soon as it enters. "We're not just throwing our hands up in the air," says epidemiologist Shokufeh Ramirez, who coordinates West Nile prevention efforts for the Hawaii DOH.

On the mainland, West Nile virus has proved unstoppable. After first appearing on the East Coast, in New York in 1999, West Nile virus marched steadily across the country. The virus is transmitted by mosquitoes, which pass it on to birds and humans. Although infection is rarely deadly to people, it kills some bird species such as crows with a vengeance; other infected birds remain healthy enough to fly and spread the virus. Last year, it reached California.

But Hawaii has a chance, if not to keep West Nile virus out, at least to stop it upon arrival. That's because researchers know how it's likely to get there. Rather than infected humans or migratory birds, the most probable culprits are mosquitoes in the cargo holds of planes, concluded A. Marm Kilpatrick of the Consortium for Conservation Medicine at Wildlife Trust in Palisades, New York, and others in a paper published in *EcoHealth* in May. Based on previous research, they estimated that seven to 70 infected mosquitoes probably reach Hawaii each year. Far less is known about the risks of introduction via shipping containers, some 1200 of which arrive in Hawaiian harbors each day. The number of overseas flights—about 80 a day—also makes prevention difficult. Moreover, airlines have balked at treating their cargo holds with insecticides that kill mosquitoes on contact. The state has made progress on another front: preventing infected poultry and pet birds from entering by mail. In 2002, the U.S. Postal Service prohibited the mailing of most live birds to Hawaii. Quarantine regulations have also been strengthened.

No barriers. Mosquitoes hitching a ride inside airplanes could bring West Nile virus to Hawaii, threatening honeycreepers and other native birds.

The health department has focused primarily on monitoring 11 airports and harbors. In 2002, they began checking dead birds by polymerase chain reaction (PCR) for West Nile virus. Last year, they added mosquito traps that are sampled each week and also examined by PCR for the virus.

At the same time, researchers are trying to figure out just what might happen if West Nile virus manages to evade detection. "Bird biodiversity will probably be severely impacted," says Jeff Burgett of the U.S. Fish and Wildlife Service in Honolulu, who heads an interagency task force. One reason is that Hawaii's endemic birds have not had a chance to build resistance to West Nile through exposure to related viruses, such as St. Louis encephalitis, that are not present on the islands. Those species that survive only in captive breeding programs, such as the Hawaiian crow, might never be able to return to the wild.

As a first step to gauge the consequences, biologists with the U.S. Geological Survey (USGS) have sent 20 native Hawaiian honeycreepers (*Hemignathus virens*) to the survey's National Wildlife Health Center in Madison, Wisconsin. There, veterinarian Erik Hofmeister has injected some of the birds with West Nile virus and is following their health and ability to serve as reservoirs for the virus. He also plans to investigate how efficiently the primary vector in Hawaii, the mosquito *Culex quinquefasciatus*, can infect these birds.

A similar experiment should help solve a problem that hampers the effort to spot the virus in dead birds. Hawaii doesn't have the North American birds—crows, magpies, jays—that provide the most obvious warning of the virus. So Hofmeister plans in December to examine which introduced birds in Hawaii, such as minahs, might be most susceptible to the virus. This will assist efforts to model potential spread of the virus. "It will also tell you which species might be amplifying the virus, and which species you may want to control," says ecologist Dennis LaPointe of USGS.

While the health department waits for these results, it is trying to speed its lab testing and streamline the response plan. Meanwhile, DOH and wildlife biologists have their fingers crossed that Hawaii's defenses will be adequate to stave off the virus—forever. "Every year it's going to be knocking on Hawaii's door," says Peter Daszak of the Consortium for Conservation Medicine at Wildlife Trust.

–ERIK STOKSTAD

CREDITS (TOP TO BOTTOM): ROBERT Y. ONO/CORBIS; D. LAPOINTE/USGS

Leptospirosis Confirmatory Diagnostic Testing

The Department of Health's (DOH) Laboratory Division is implementing confirmatory testing for leptospirosis, effective November 22, 2004. Prior to this, samples for testing with the microscopic aggutination test (MAT) had been sent to the Centers for Disease Control and Prevention (CDC). This test is labor intensive using live antigens representing various serogroups of leptospira. With financial assistance from the DOH Disease Outbreak and control Division, necessary equipment was obtained to maintain and store the antigens. The advantage of the test being conducted in Hawai`i is that the turnaround time will be greatly reduced from the one to three months it takes now to two weeks.

A battery of 15 antigens are included in the test. The antigens chosen were based on historical positive test results of Hawai`i cases and represent 15 of the 23 known serogroups of leptospires. Testing will be conducted bi-weekly. Results will be mailed back to the submitting laboratories/physicians the day after the test is completed. Assistance with interpretation of test results will be included on the report form.

Requirements/Restrictions

The prerequisites for sample testing are as follows:

1. Only paired samples (drawn over one week apart) or single samples drawn at or after 14 days after symptom onset will be tested. Paired samples will be tested together.
2. The laboratory submission form (81.3) must be completely filled out. Even though clinical laboratory staff complete the forms, the requesting physician is responsible for providing the necessary information. It must include patient's name and address, physician's name and address, onset date, and a brief clinical history. Samples submitted without the above information will not be tested.

Diagnostic Criteria

Leptospirosis is confirmed through laboratory testing, which may include serology, culture or tissue diagnosis. Serologic testing is the preferred method of diagnosis and the most sensitive. Sensitivity of cultures is relatively poor, especially urine cultures. Tissue diagnosis is primarily done on post-mortem samples. When the disease is suspected and serum samples are submitted, the DOH laboratory tests the samples with an IgM Dot ELISA screening test (Dip-S-Ticks test), and reports the results back to the submitting physician/laboratory. After a convalescent sample is received, the paired samples will be tested concurrently with the MAT, and the results of both tests will be reported back to the submitting laboratory/physician.

Case Classification

Following CDC guidelines, there are two case classifications based on clinical and laboratory criteria.

Clinical Description: An illness characterized by fever, headache, chills, myalgia, conjunctival suffusion, and less frequently by meningitis, rash, jaundice or renal insufficiency. Symptoms may be biphasic.

1. **Presumptive.** A clinically compatible case with supportive serologic findings; i.e. a *Leptospira* MAT titer of equal to or greater than 1:200 in one or more serum specimens without a fourfold increase in titer between acute and convalescent samples.

2. **Confirmed.** A clinically compatible case that is laboratory confirmed. These may include 1) a positive culture; 2) a positive immunohistochemical test on a tissue sample; or 3) paired samples that show seroconversion between acute and convalescent samples or a fourfold rise between acute and convalescent samples.

For more information, please contact David M. Sasaki, D.V.M., M.P.H., Veterinary Medical Officer at (808) 586-8351 or Harry Domen, Bacteriology Section Serologist, State Laboratories Division at (808) 453-6706 in Honolulu.

Bioterrorism Response Laboratory – Then and Now

Bioterrorism was not a hot button issue in the state when the Bioterrorism (BT) Microbiologist and Coordinator position for the State Laboratories Division (SLD) was created in 1999. At that time, concern was expressed that state's BT program would take away much needed resources to support important public health programs. But this changed after September 11, 2001.

Role

The BT Response Laboratory (BTRL) was placed under the supervision of the chief of the SLD. Subsequent experience has shown that this was the correct decision as the BTRL became one of the first lines of defense in the state's Emergency Preparedness and Response to BT and other Emerging Infectious Diseases. Using state-of-the-art biodetection capabilities, the BTRL provides molecular and serological testing in support of epidemiological investigation of outbreaks involving pathogens such as Norwalk-like viruses. Furthermore, rapid real-time polymerase chain reaction (PCR) assays are performed in support of surveillance activities to detect and prevent the establishment of infectious disease pathogens such as West Nile virus, SARS CoV, and to rule-out avian influenza.

Funding

The BTRL was started with Year 01 funding of $144,000 through the Federal Centers for Disease Control and Prevention Cooperative Grant for Bioterrorism. The limited funding allowed the BTRL to perform confirmatory testing for three BT agents using conventional microbio-

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logical analyses. During the anthrax events of 2001, our limited detection capabilities caused some frustration among the response community who were under pressure to provide rapid response as news of the weapons-grade anthrax powder became public. For Year 05 of the BT Cooperative Grant, the SLD received a total of $1,141,774 for personnel, equipment and supplies.

Staffing

The BTRL expanded from one person in December 1999 to the present complement of staff; three are licensed microbiologists, one food microbiologist, one laboratory information technologist, one laboratory and information support specialist, two laboratory assistants, and one secretary. Significant changes affecting the BTRL operations occurred with the enactment of the Public Health Security and BT Preparedness and Response Act of 2002. This Act was signed on June 12, 2002 by President Bush and requires the registration of entities for the possession, use and transfer of select agents. Entities are required to establish safety and security guidelines and individuals such as the BT response staff needing access to these select agents must undergo a security risk assessment (SRA). The Federal Bureau of Investigations, Criminal Justice Information Services Division was assigned the responsibility to conduct the SRAs by the Department of Justice.

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Table 1: Bioterrorism Response Laboratory Capabilities

Organism	Specimen Type	Assay Type	Turn-Around-Time (TAT) PCR-Preliminary Result	TAT TRF for Preliminary Result	TAT Culture/Isolation for Confirmation
Bioterrorism agents	Environmental, human (clinical), and food	Real-time PCR; Time-Resolved Fluorescence (TRF); Confirmatory tests	4-6 hours	6-8 hours	24-72 hours
Rule-out for smallpox	Environmental; human (clinical)	Real-time PCR	4-6 hours	ND	ND
Rule-out for smallpox	Environmental; human (clinical)	Direct Fluorescent Assay (DFA)	4 hours	ND	ND
Rule-out for smallpox	Environmental; human (clinical)	Transmission Electron Microscopy (TEM)	5 hours	ND	ND
West Nile Virus	Mosquito pools, avian tissues; human CSF	Real-time RT-PCR	4-6 hours	ND	ND
West Nile Virus	Avian serum; human serum; horse serum	Capture or MAC-ELISA for human/horse; Blocking ELISA for avian serum	2 days for MAC-ELISA; 8-10 hours for Blocking ELISA		Plaque reduction Neutralization Test (PRNT)- 5-10 days
NoroVirus	Stool	RT-PCR	2 days; additional 2 days for confirmation		Sequence Analysis
Murine typhus	Serum or plasma- Acute and Convalescent sera	Indirect Fluorescent Assay (IFA)	1 day (check with the BT Lab for schedule)	ND	ND
Severe Acute Respiratory Syndrome CoronaVirus (SARS CoV)	Swabs (Nasopharyngeal/Oropharyngeal); aspirates	Real-time PCR	4-6 hours	ND	ND
Severe Acute Respiratory Syndrome CoronaVirus (SARS CoV	Acute and Convalescent sera	ELISA	8 hours	ND	ND
Flu A	Swabs (Nasopharyngeal/Oropharyngeal); aspirates	Real-time RT-PCR	4-6 hours	ND	ND
Flu B	Swabs (Nasopharyngeal/Oropharyngeal); aspirates	Real-time RT-PCR	4-6 hours	ND	ND
AdenoVirus	Swabs (Nasopharyngeal/Oropharyngeal); aspirates	Real-time RT-PCR	4-6 hours	ND	ND
Legionella spp.	Swabs (Nasopharyngeal/Oropharyngeal); aspirates	Real-time RT-PCR	4-6 hours	ND	ND
Legionella pneumophila	Swabs (Nasopharyngeal/Oropharyngeal); aspirates	Real-time RT-PCR	4-6 hours	ND	ND
Chlamydia pneumoniae	Swabs (Nasopharyngeal/Oropharyngeal); aspirates	Real-time RT-PCR	4-6 hours	ND	ND
Mycoplasma pneumoniae	Swabs (Nasopharyngeal/Oropharyngeal); aspirates	Real-time RT-PCR	4-6 hours	ND	ND

Note: Call the BT Response Laboratory for specimen requirement and TAT is dependent on the number of specimens received and the quality of specimens submitted.

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Mission & Networking

As a National Laboratory Response Network (NLRN) reference laboratory, the primary mission of the BTRL is to ***"To develop and implement a jurisdiction-wide program to provide rapid and effective lab services in support of the response to BT, other infectious disease outbreaks, and other public health emergencies."*** To fulfill this mission, the Hawai`i Laboratory Response Network (HI LRN) was established in October 2000. The network was initially comprised of seven hospital-based and commercial laboratories primarily from O`ahu. Today the HI LRN includes other hospital-based clinical laboratories on the neighbor islands, a private food-testing laboratory, four veterinary laboratories including the Veterinary Laboratory of the State Department of Agriculture, the Tripler Army Medical Center (TAMC) and the Navy Environmental Preventive Medicine Unit-6 (NEPMU-6). TAMC is a military reference laboratory for clinical specimens while the NEPMU-6 handles environmental samples. The BTRL tests clinical, food and environmental specimens and performs real-time PCR, time-resolved fluorescence assays and confirmatory testing for specimens implicated in a BT event. All clinical, food and veterinary laboratories are designated as sentinel laboratories. Sentinel laboratories are responsible for performing rule-out testing. Suspicious isolates are forwarded to the BTRL for confirmatory testing.

Certification

As the State Public Health Laboratory, the SLD sets standards for quality assurance, biosafety and biosecurity practices statewide. The BTRL promotes this function by providing training for technicians on the presumptive identification of critical bioagents, which include biosafety and biosecurity practices in handling specimens from suspect BT agents. Certification training for laboratory staff on packing and shipping diagnostic and infectious substances is also provided. This ensures that state and federal regulations affecting transportation of infectious materials and substances within the state are followed.

Expected Expansion

While BT response is our primary mission, the diversity of public health threats that Hawai`i faces as the gateway to the Pacific is considered. The challenge is to improve and expand laboratory capabilities to deal with all types of hazards including infectious agents that may require higher biosafety containment level. The laboratory is currently a Biosafety Level-2 plus containment facility. The goal is to become a BSL-3 plus laboratory in order to safely and effectively handle BSL-3 pathogens, such as avian influenza.

Retention of the current skilled and qualified BT staff is an on-going concern. Plans to expand into molecular epidemiologic methods and development of a BSL-3 laboratory will require additional skills and staff. The BTRL staff continues to work with public health and non-public health partners to ensure the health and safety of the people of Hawai`i.

For more information, please call the BTRL on O`ahu at (808) 453-5990.

Submitted by Rebecca H. Sciulli, M.Sc., M.T., Coordinator, Bioterrorism Response Laboratory, State Laboratories Division.

HIV/AIDS in Hawai`i

The state of Hawai`i is classified as having low morbidity for acquired immunodeficiency syndrome (AIDS). In 2002 according to the Centers for Disease Control and Prevention (CDC), Hawai`i had an AIDS rate (cases per 100,000) of 10.8.[1] This article provides information on Hawai`i's HIV/AIDS reporting system, reporting requirements, data analysis of AIDS cases, data release procedure, and statistics on HIV/AIDS on a national and global level.

Background of Hawaii's HIV/AIDS Surveillance

In 1983 Hawai`i began reporting AIDS. In 1993 the state's providers started reporting AIDS using CDC's expanded AIDS case definition[2] with low CD4 (<200 cells/mm$^3$ and/or <14% -T-lymphocyte) counts. Since 1998, Hawai`i's laboratories are required to report low CD4 test results. In 2001, the state implemented an HIV reporting using a code known as unnamed test code (UTC), which is created from the patient's name and part of the date of birth.

HIV Reporting: From September 1, 2001 through June 30, 2004, a cumulative total of 758 HIV (non-AIDS) cases were diagnosed in Hawai`i [3]. The state's code-based HIV reporting system is one of the nation's 14 code-based reporting systems[4]. As of June 2004, Texas, Kentucky, and Puerto Rico changed to named reporting from a code-based reporting system. California, a code-based reporting state, is also considering a change to named reporting. Therefore, Hawai`i's code-based reporting system is currently under review. If the system does not fulfill CDC and state reporting requirements, then named reporting for Hawai`i may be considered.

AIDS Reporting: As of December 31, 2003, a cumulative total of 2,866 AIDS cases have been diagnosed and reported to the Hawai`i Department of Health (DOH) (Figure 1). The number of AIDS diagnoses increased each year from 1983 to 1993 and decreased thereafter with the exception of 1998. The peak in 1993 was partly due to the expansion of CDC's case definition of AIDS. The slight increase in 1998 may have been due to the inclusion of laboratory reports of low CD4, in that year. The surveillance staff

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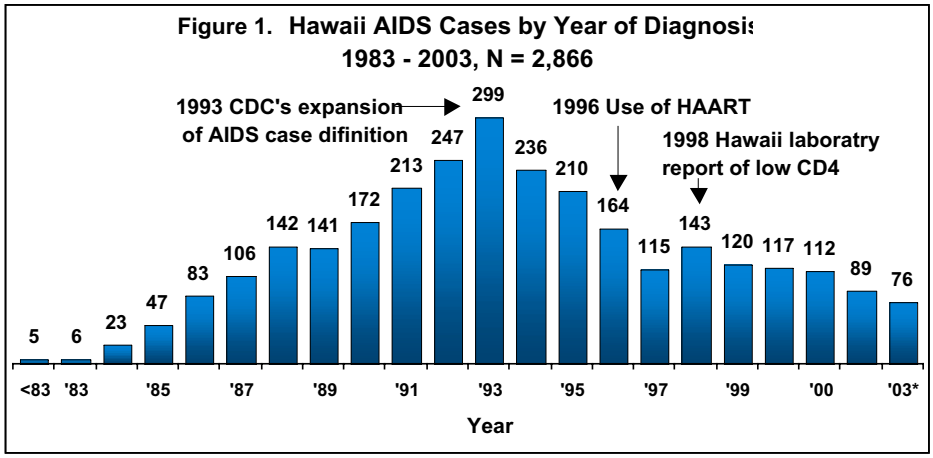
has conducted medical record reviews at different health care facilities and captured many unreported AIDS cases diagnosed from 1998 to 2003.

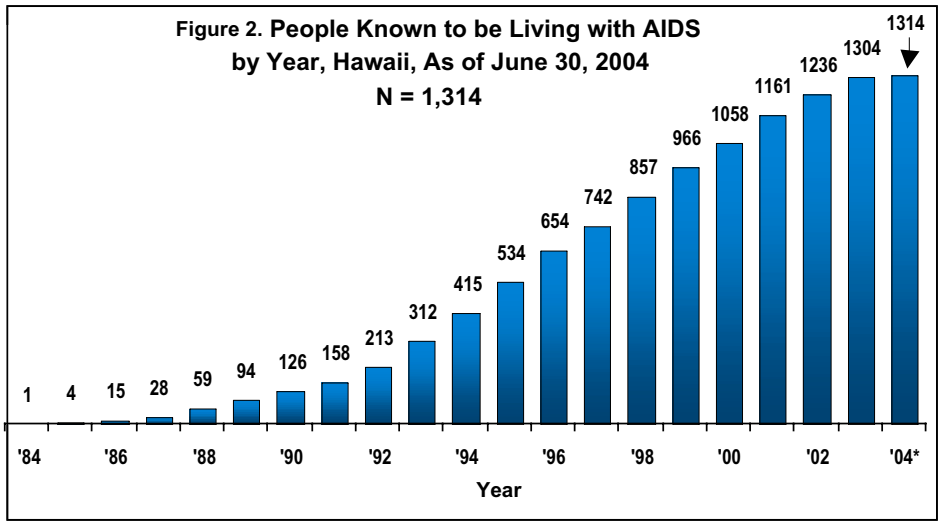
As effective anti-retroviral therapy (HAART) became widespread after 1996, mortality from AIDS has decreased and AIDS diagnoses have also declined. However, AIDS prevalence has increased (Figure 2). As of June 2004, there were 1,314 people known to be living with AIDS in Hawai`i. This number accounts for only the state's diagnosed cases, and does not include people living in Hawai`i with AIDS who were diagnosed in other states.

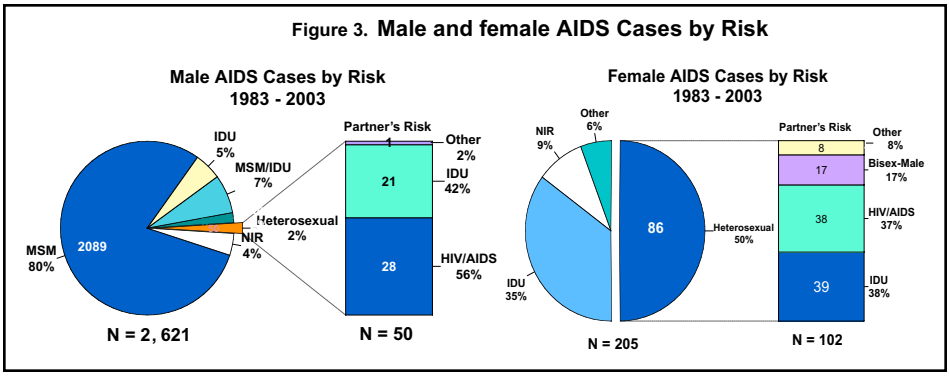
By Gender

2621 (93%) AIDS cases were diagnosed in males[5]. The ethnicity of these cases were: Caucasians (64%), Asian Pacific Islanders (API) (26%), Hispanics (5%), African American (4%), and other races (<1%). There were 205 female AIDS cases (7%). Ethnicity varied somewhat from male cases. About half (45%) of female AIDS cases were API followed by Caucasians (39%), Hispanics (7%), African Americans (6%), and other races (3%). The risk factors for AIDS among males are as follows: 80% men having sex with men (MSM), 7% combined risk – MSM and injection drug use (MSM/IDU), 5% injection drug use (IDU), and a few other risk factors such as heterosexual contact, transfusions, and hemophilia. The primary risk factor for female AIDS cases was heterosexual behavior (50%). Figure 3 shows the percentages of heterosexual cases and their partner's risk factors. Female partners' risk factors are primarily IDU (39, 38%), followed by HIV/AIDS infected sexual partners (38, 37%), bisexual males (17, 17%), and other risks (8, 8%). On the other hand, male partners' risk factors include HIV/AIDS sexual partners (28, 56%), IDU (21, 42%), and other (1, 2%).

As AIDS incidence (new diagnoses) for each year has decreased, the proportion of male cases has decreased from 792 (91%) in 1994-1998 to 453 (88%) in the recent five-year period (1999 – 2003). While absolute numbers of new female cases have decreased, the proportion of female cases has increased from 77 (9%) to 61 (12%) for the same time periods.[3]







By Age Group

The majority of AIDS cases were diagnosed in individuals between the ages of 30 and 49 (55%).[5] The percent of AIDS cases in the 20 to 29 age group is decreasing. AIDS cases over 49 years increased from 10% before 1994 to 18% in 1999 through 2003. There were less than one percent pediatric and less than one percent adolescent cases diagnosed from 1983 to 2003.

By Risk

The major risk behavior for AIDS in males is MSM and accounts for 62% of the cumulative AIDS cases. The proportion of AIDS cases for MSM, IDU and

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MSM/IDU has decreased in the most recent five-year period.[2] In the same time period, there has been a slight increase in the proportion of AIDS cases among heterosexuals (1%). The largest group increase was in the proportion of "unknown risk" (13%). These cases are under investigation for classification into specific known risk categories.

By Race/Ethnicity

As of December 31, 2003, the majority of AIDS cases were diagnosed in Caucasians 1,757 (62%), followed by the Asian and Pacific Islander group 773 (27%).[5]

By County

The majority of all AIDS cases were diagnosed in Honolulu county (2,063, 72%), followed by Hawai`i (386,13%), Maui (303,11%) and Kaua`i (124,4%) counties.

Living AIDS Cases

As of June 30, 2004, there are 1,314 people known to be living with AIDS, 1,188 (90%) males and 126 (10%) females. The majority of living cases are Caucasians (905, 61%), followed by Asian Pacific Islanders (325, 25%), Hispanics (92, 7%), African Americans (76, 6%), and other groups (American Indian and Alaskan). The risk breakdown for living cases is 70% as MSM, 8% IDU, 7% MSM/IDU, 7% unknown, and 1% other risks. The rates (per 100,000 population) in the four counties are as follows: O`ahu 93.9; Maui 135.7; Hawai`i 133.8; and Kaua`i 85.5.[4]

National Data

HIV

As of 2002, there were 199,759 of HIV (non-AIDS) cases reported to CDC from 35 named based reporting states and from four territories.[6] New York, Florida, New Jersey, Texas, and North Carolina reported 35% of the cumulative cases. In 2002, 35,147 HIV (non-AIDS) cases were reported to CDC: 68% male, 32% female, and 1% (420) children. Florida, New York, and Texas reported 64% of the total HIV cases in 2002. At the time of this report, the 2003 national data have not been released. HIV data from the code-based reporting states are not included in the national data. An estimate suggests that 30% of the national HIV cases could be from code-based reporting states.

AIDS

As of 2002, a cumulative total of 859,000 cases of AIDS from the 50 states, Washington, D.C., Guam, Puerto Rico, the Pacific Islands, and the Virgin Islands were reported to CDC.[6] California, Florida, and New York reported 44% of the total AIDS cases. Rates (cases per 100,000) of AIDS range from 0.5 in North Dakota to 162.4 in Washington, DC. Hawai`i's rate of 10.8 ranked 28th in the nation. In 2002, a total of 43,950 cases were reported to CDC: 74% male, 26% female, and 0.4% (158) children.

Worldwide Data

As of 2003, 40 million people are known to be living with HIV/AIDS, including 2.5 million children (less than 15 years of age). Twenty five million people have died of HIV/AIDS including 5.3 million children.[7] In 2003, a total of 5 million people were newly diagnosed with HIV, including 0.8 million children.

Hawai`i Data

HIV/AIDS data are disseminated through two publications.

1. *The HIV/AIDS Surveillance Semi-Annual Report:* This report contains information on the number of cumulative cases of HIV and AIDS, data analysis of AIDS by year, gender, age, race/ethnicity, risk, and by county. Two issues of this report are distributed to approximately 900 subscribers including all AIDS reporting sources, statewide. This report is available at this website: http://www.hawaii.gov/health2/health//healthy-lifestyles/std-aids/aids_rep/index.html

2. *Epidemiological Profile of HIV/AIDS in Hawai`i:* This document contains data on statewide programs related to HIV and AIDS. Data analysis is prepared and distributed in alternate years to the HIV community prevention and care planning purposes. This document is available at http://www.hawaii.gov/health2/health//healthy-lifestyles/std-aids/aids_rep/index.html

Reporting Requirements

HIV Reporting

1. **Physician reporting:** Since August 27, 2001, the Hawai`i Administrative Rules §11-156-8.8 require local physicians to report all HIV cases using unnamed test code (UTC) to the DOH.[8]
2. **Laboratory Reporting:** Since August 27, 2001, the Hawai`i Administrative Rules §11-156-8.9 require local laboratories to report all HIV positive confirmatory test results and detectable viral loads to the DOH.

AIDS Reporting

1. **Physician Reporting:** Hawai`i Revised Statutes (HRS) §325-2 and Hawai`i Administrative Rules §11-156-3 require physicians to report AIDS cases with or without low CD4 values (<200 cells/mm^3 and/or <14% -T-lymphocyte). Reporting by name is required at the time a person is diagnosed with AIDS as defined by the Centers for Disease Control and Prevention (revised in January 1993).[8]
2. **Laboratory reporting** of low CD4: Since 1998 the Hawai`i Administrative Rules §11-156-3 require local laboratories to report low CD4 values (<200 cells/mm3 and/or <14% -T-lymphocytes).

For more information, please call the STD/AIDS Prevention Branch at (808) 733-9010 in Honolulu.

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Hansen's Disease In Hawai`i's Pacific Islander Population A Ten Year Review:1994-2003

Background

In the most recent World Health Organization (WHO) Epidemiological Review of Leprosy for the western Pacific region, 2001, the Republic of the Marshall Islands (RMI) and the Federated States of Micronesia (FSM) had the highest prevalence rates for Hansen's disease (HD) in the Pacific at 9.45 cases per 10,000 and 4.96 cases per 10,000 respectively.[1] By contrast, Hawai`i's HD prevalence rate for 2001 was 0.19 per 10,000. The new case detection rate in the Pacific region for 2001 was also the highest in the RMI at 114.5 per 100,000 and in the FSM at 75.21 per 100,000. The only consolation to these staggering statistics is that the populations for RMI and FSM are relatively small at 55,000 and 117,000 respectively.

Despite the relatively small population numbers, Hawai`i is one of the primary migration destinations due to its economic and educational opportunities. In 1997, there were 7,000 Micronesians (citizens of the RMI and the FSM) residing in Hawai`i. In the 2000 census, this number increased to 12,724 with the numbers continuing to rise annually. The

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Table 1: New Micronesian HD Cases by Birthplace and Year Hawai`i: 1994 - 2003

Birthplace	Year										
	1994	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**Total**
FSM[1]	3	2	1	4	3	8	5	7	5	7	**45**
RMI[2]	1	2	6	8	7	4	5	10	4	5	**52**
Micronesian Total	4	4	7	12	10	12	10	17	9	12	**97**
State Total	**21**	**19**	**15**	**26**	**19**	**22**	**15**	**24**	**11**	**15**	**187**
Micronesian as % of Total	19	21	47	46	53	55	67	71	82	80	52

[1] FSM = Federated States of Micronesia (Kosrae, Pohnpei, Chuuk, Yap)
[2] RMI = Republic of the Marshall Islands

Table 2: New Micronesian Hansen's Disease Cases by Age Group and Year Hawai`i: 1994 - 2003

Age Group	Year											
	1994	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**Total**	% of Total
<18 yr.	1	0	4	4	5	1	4	1	1	2	**23**	24
18 – 29 yr.	2	0	2	6	3	10	6	10	8	6	**53**	55
30 – 39 yr.	0	3	1	1	1	0	0	4	0	3	**13**	13
40 – 49 yr.	0	1	0	0	1	1	0	1	1	1	**6**	6
> 49 yr.	0	0	0	1	0	0	0	1	0	0	**2**	2
Total	**3**	**4**	**7**	**12**	**10**	**12**	**10**	**17**	**10**	**12**	**97**	100

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Compact of Free Association allows Micronesians to travel freely between their countries and Hawai`i without the need for visas or medical screenings. They may reside and work in the United States as non-immigrants.

First Case: 1998

Hawai`i saw its first case of HD in the Micronesian-born population in 1988. Since then, new cases of HD in Hawai`i's Micronesians have risen to represent 80% (for 2003) of the total new cases diagnosed annually. A look at new HD cases in our Micronesian population shows a steady increase in cases from four in 1994 to 12 in 2003 (Table 1). The first major increase of cases occurred after 1996 when a number of HD cases were discovered in a Micronesian population living in Kona, Hawaii. Once the Hansen's Disease Community Program (HDCP) realized the extent of the potential disease load in this population, new active screening programs were targeted for this population statewide.

Age and Gender

For the ten-year period 1994 through 2003, new HD cases in the Micronesians included 65 male and 32 females, confirming the 2:1 male to female gender ratio that is usually seen with HD. The breakdown of cases by age shows that 24% of the total cases (23/97) are under 18 years old and 78% (76/97) are under 29 years of age (Table 2). A high proportion of cases in children and teens represents a sign of active and recent transmission of the disease.[2] While there is little to nonexistent transmission of HD in the Hawai`i born population, the same conclusion may not necessarily be drawn with the Micronesian population now living in Hawai`i.

Multibacillary vs. Paucibacillary

Breaking down the Micronesian cases into multibacillary and paucibacillary cases by country for the last ten years gives a curiously contrasting picture. In the FSM, the number of multibacillary cases is substantially greater than the paucibacillary cases (28 multibacillary: 17 paucibacillary). In direct contrast, the RMI has 19 multibacillary cases to 33 paucibacillary cases.

Generally, multibacillary cases present with more obvious clinical symptoms than paucibacillary cases and would more readily motivate the patient to seek medical attention. The symptoms would also make for an easier diagnosis, increasing the numbers of diagnosed multibacillary cases. This would account for the multibacillary:paucibacillary breakdown seen in the FSM, but not the reverse proportion as seen in the RMI. One possible explanation for the greater number of paucibacillary cases from the RMI is that HDCP's active screening program initially focused on the RMI which allowed for early diagnosis of paucibacillary cases which otherwise might have gone undetected.

Screening and Prophylaxis

Another variable that must be considered is the WHO's decision to initiate special screening and treatment programs within each country.[3] In the FSM, HD screening and prophylactic treatment with a single dose of 600 mg rifampicin, 400 mg ofloxacin and 100 mg minocycline (ROM) was attempted for the entire population in 1996 and again in 1997. It was reported first that 69% and then 71% of the population were given the ROM prophylaxis in the screening rounds, with 87% of the population receiving at least one dose. In the RMI, between 1998 and 2000, all household contacts of newly di-

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agnosed HD patients received ROM. The smaller number of paucibacillary cases in the FSM born population may be attributed to the countrywide ROM prophylaxis effort. Because the prophylaxis coverage in the RMI focused only on contacts of known patients, potential paucibacillary cases remain uncured and relatively unaffected resulting in the higher numbers diagnosed in Hawai`i under the active screening program.

Of the 97 Micronesian-born HD cases (1994-2003), 25 had the opportunity to receive ROM (resided in the FSM at the time ROM was given). Five of the 25 (20%) claimed to have received single dose ROM. All five of ROM treated cases were born in the FSM. There were no RMI born cases that received ROM. The small sample size (potential pre-selection) as well as self reporting (or the lack of reporting) may be the two primary reasons that Hawai`i's percentage of those treated with ROM is so different than the WHO's claim of 87% of the population receiving at least one dose.

Prophylaxis: Inadequate Therapy

A single dose of ROM may adequately treat paucibacillary cases but is questionable for multibacillary cases. There is no study to prove that single dose ROM is effective for multibacillary HD. In a treatment study using a six-week drug regimen (very similar to ROM) of daily 600 mg rifampicin, 400 mg ofloxacin, 100 mg clofazimine and a weekly dose of 100 mg of minocycline for 136 multibacillary patients, the relapse rate was 13% after 10 years.[4] Relapse rates usually run from 0.0% to 2% for adequately treated multibacillary HD patients on WHO's multi-drug therapy.[5] Although the study numbers were small, the authors' conclusion was that the regimen cannot be recommended for the treatment of multibacillary HD.

If ROM is considered inadequate treatment for certain cases of HD, then those cases treated with ROM will appear as inadequately treated cases, and may take longer to present with symptoms. This is supported when we compare the average time from symptoms to diagnosis for the five cases who took ROM to the other FSM born cases without ROM. The average time from symptoms to diagnosis for those who received ROM was 44 months versus 29 months for those who didn't take ROM. The average time from symptoms to diagnosis for all new HD patients over the last ten years is 36 months.

While no literature could be found to support inadequate treatment altering or suppressing clinical symptoms of HD, an indirect measure of this change might be found in an increasing tally of the suspicious (suspects) cases of HD in our Micronesian-born population. From 1996 onward, there was a steady increase in the numbers of suspects who are followed by the program. Suspect cases show some of the clinical symptoms of HD, but not enough to make a definitive diagnosis for HD. From 1996 to 2003, 66 suspects were followed ranging from a low of two in 1996 to a high of 14 in 2002. Prior to 1996, the program followed one to two suspects annually at most. Suspects are followed by the program until they are either diagnosed with HD or the symptoms resolve. Of the 66 suspects followed, 13 converted to actual HD cases.

While the numbers of suspects has substantially increased since 1996, there may be other variables that have also contributed to this increase, the most notable being that the outpatient program is much more "sensitive" to any type of symptoms similar to HD in this high risk population. Because of this, no definitive conclusion can be drawn regarding inadequate HD treatment altering or suppressing clinical symptoms of HD.

Conclusion:

The Micronesian-born population and their unique circumstances pose continuing implications for those who provide medical care and more specifically their HD care. As long as the migration to Hawai`i continues, the majority of our HD cases will be from this population.

Even though the rates of HD have dropped in the individual countries, they still remain high enough to keep disease transmission viable. This is complicated because many Micronesians frequently travel between Hawai`i and their country of origin, risking HD exposure or re-exposure. Finally, ROM prophylaxis in the individual countries may have affected the HD disease progression in certain individuals making diagnosis more difficult with longer time to relapse.

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Infant Immunization Focus Group Study

Prevention of disease through immunizations is one of the best public health success stories. Despite the fact that many children receive immunizations, there are still some who lag behind. In fact, in Hawai`i for a three-year period there was an 8.8% drop in coverage for the 4:3:1:3:3 (4 DTaP, 3 IPV, 1 MMR, 3 HIB, 3 HBV) series in the 19-35 month age group (Whitehead, 2003).

Purpose

In response to this declining immunization rate in children, the Department of Health (DOH) funded a qualitative study to understand why parents do not get their children's immunizations on time. The purpose of the study was to explore the barriers to immunizations in parents whose children are not fully immunized (Completion of 4:3:1:3:3 {4 DTaP, 3 IPV, 1 MMR, 3 HIB, 3 HBV}) by 24 months of age. This study was approved by the University of Hawaii at Manoa Committee on Human Subjects. This article highlights some of the important findings from the study.

Methods

Thirteen focus groups were held between December 2003 and July 2004. Focus groups sessions were held in the following locations: Wahiawa (2), Waipahu (1), Honolulu (2), Kaneohe/Kailua (1), Kaua`i (1), Maui (2), Kona (1), Hilo (2), and Pahoa (1). Twelve questions, ranging from general to specific, were asked each group (Table 1). Each session was digitally-recorded and cassette-taped and was transcribed verbatim for analysis. Inclusion criteria for the groups included: parent (mother or father), foster parent, or guardian of a 24-59 month old child with a child behind at least one immunization at age 24 months (DTaP, IPV, MMR, HIB, HBV, varicella).

A total of 64 parents, guardians or foster parents participated in the study. The mean age of the sample was 33.2 (SD 8.5) and mean number of children in the family was 2.75 (SD 1.5). Fifty-six percent used Women Infant Children (WIC) services, 31% did not use WIC and 13% did not respond to the questions. Seventy-three percent of the parents were born in the United States (U.S.) and most were U.S. citizens (n=58, 91%); however, 8% were not citizens of the U.S. (1%, n=1 did not respond to the question). The demographic characteristics of the participants can be found in Table 2.

Results

In this study, participants recognized the need to bring their children into the clinic for wellness visits and immunizations. When participants were asked "Why do parents bring their child to the clinic?" there were more responses in the "prevention" category compared to the "illness" category.

Participants receive information about immunizations from a variety of places. The majority of responses were either the "media" or "health care provider"; however, there were many community sources of information about immunizations for these participants. Of interest was that the number of responses to different types of media as sources of information was about equal to the responses related to receiving information from health care providers. Participants also identified the internet as a source of information. One repeated theme that emerged about immunization information was that participants wanted more detailed information about vaccine preventable diseases (VPD). They also felt that by providing realistic scenarios about the consequences of having a child with a VPD, the impact on parents would be significant. Many of the participants who choose alternative medical care referred to "Mothering Magazine" as a reputable source for immunization information. There seemed to be an unconditional trust in the information provided in this magazine and mistrust for other national sources of immunization information. They talked about their concerns that national sources are biased towards vaccine manufacturers and provide little or no independent research.

Four Reasons

Four major categories emerged relating to reasons why parents do not want to get their children shots. The majority of responses were in the parental category, which included personal beliefs, fears, personal issues, information confusion, substance abuse, forgetting and no parental support. Financial, transportation and organizational categories had a few responses. One mother provided a good example that supported the parental issues category.

"I think just the whole inconvenience. I know it's important but it's just a lot of work…like my sister-in-law has six, her kids she plays catch up all the time because for her to get six kids ready and take them to go get shots, it's a whole day…A whole field trip, you know. Imagine…You have three, you're holding the baby, one is getting the shot and then you're chasing the other one around…. If you're by yourself it's hard."

Barriers to getting to the clinic or doctor's office to get shots fell into the same four categories (parental, transportation, financial and organizational). However, instead of personal beliefs as the number one parental issue, work schedules and commitments had the most responses. Other issues such as motivation, too much effort, too complicated to go and transient living situations were also recognized as barriers to going to the clinic. In both questions, parental substance use was identified as a barrier to childhood immunizations. Several family members were raising the children of substance abusers. They spoke candidly about the difficulty they had in dealing with the parents of the children and how the needs of the abuser always comes before the needs of their children. One guardian explained,

"Well, the ICE issue here in Hawai`i is big right now. I have family members who are on that and have kids and ne-

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glect their kids. So that just popped into my head. I think it is a major thing, too. (The child) Probably don't get the daily necessities let alone being taken to the doctor. Just the drug effect on the person's mind is enough to make a person not aware of anything except her need for more."

Another question was asked specifically about barriers for parents to get their children to the clinic for shots on time and according to the schedule. This question was intended to get at barriers to keeping the child up to date according to the recommended immunization schedule. Again, parental issues had the highest number of responses to this question. Lack of knowledge about schedules, understanding about the importance of immunizations, mistrust with immunizations and lack of motivation issues were raised in several groups. Concerns and worries (about side effects, the number of shots, and the trauma of the immunization process for both parent and child) also came up several times in the discussion. Participants frequently discussed that parents may forget about the need to bring their children for immunizations. Participants also said that parents are busy and have complex situations that can create barriers to getting to the health care providers for immunizations on time. Substance abuse was mentioned several times as a reason children are not getting their shots according to the immunization schedule.

Several organizational barriers such as availability of appointments and vaccines, no reminder systems, provider's differences of recommendations for shots, and clinic policies get in the way of parents getting their children their shots on time, according to the schedule. One parent said,

"I would say forgetfulness and when you finally realized, oh, my child has to have their shot…then when you make an appointment the office is booked and you got to wait for months…because before they give your child their shots, they have to see the doctor and get a physical first. They only have certain time slots for the child to go in and be seen by the doctor and have the immunization. The rest is for sick kids. So when you call in to schedule a physical, you have to wait a few months out before that can happen."

Lack of transportation and money were also noted to be barriers for parents. Finally, issues related to the child, prevent on time immunizations. Childcare for other children in the family, child illness that prevents immunizations, and perceptions that the child is too fragile/small/immature to handle immunizations were the predominant child-related issues.

Participants had many suggestions that would make it easier for parents to immunize their children on time and according to the schedule. Many organizational changes such as increasing appointment days and times, establishing reminder or recall systems, changing clinic policies, creating child-friendly environments and running immunization campaigns were discussed. To decrease barriers for parental issues, the participants felt that more direct information with visual media of the VPD needed to be provided to parents. In addition, many of the anti-vaccine parents talked about needing a health care provider that would 'work" with them, be flexible about vaccine schedules, allow parents to pick and choose which vaccines to give their children, provide unbiased information and respect their decisions. One mother said…

"We had a nurse practitioner who we would see a lot because I like her style and she was the one who spent a lot of time with me on the timing of the shots, how you could ask for single dosages and how you could break them up time wise. What you could do prior to bringing your child in so that it won't be as traumatic, taking Tylenol and massaging the area. I never said I would never vaccinate her, I just said I didn't want to do it while she was that young. Then they were doing the, well, you have to catch up thing. So my reaction to them was catch up to what? What is the race to get her caught up for? So now she is caught up and she is fine and I think that her body was able to handle the amount that they were giving her at an older age and I nursed her until she was two-and-a-half so she was basically healthy. I never needed to take her anywhere to see anybody except for the baby well check so I could get her birth certificate."

Public policy and system changes such as lobbying for parental leave for childhood immunization visits, decreasing the number of shots, providing alternatives to injectable immunizations, the need for more independent research, and creating community support could reduce barriers. One mother advocated for changes in public policy, she said

"You can't put a dog on the plane unless it's had all its shots. But you can put a kid on the plane from another country who has never had any immunizations and let them on the playground with our kids….."

Participants wanted to tell their stories, share their experiences, discuss their concerns and worries and give their suggestions on how to minimize immunization barriers. They truly care about their children, they want to protect them, and raise them to be healthy and productive citizens.

Recommendations

This study identified the parental barriers to immunizations for children in Hawai`i. Different barriers exist in different communities, with different health care systems, and with different health care providers. In order to decrease the barriers to immunizations, one must identify the unique barriers specific to the setting. Once identified, specific intervention can be targeted to reduce the barriers. To achieve this goal, using the rich data from this study, the next suggested step is to create a Parental Immunization Barriers Survey that can be utilized by health care providers, clinics, and communities to identify specific barriers. A quantitative

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study, using this Parental Immunization Barriers Survey, could be used by the DOH for a statewide immunization barriers study.

There are many references in these transcripts about the type of information that parents would like to get about immunizations. They want specific and direct information about the VPD. They want to know what would happen to their children if they did not vaccinate them. They also felt that TV and radio were helpful for dissemination of information. The internet was also mentioned several times as a source of information. The data from this study should be made available to the media campaign staff and consultants.

The information from this study should receive wide dissemination throughout the state of Hawai`i. There is key information for health care providers that have implications for practice; especially the information about parental fears and concerns about immunizations and the organizational barriers identified in the discussions. Public health nurses, community agencies, and other health care systems would benefit from this information.

Finally, lobbying for parental leave for beginning interventions to minimize barriers for childhood immunizations, funding pilot studies aimed at minimizing barriers to immunizations, creating a statewide reminder system, and partnering with community and insurance agencies can all contribute to increasing childhood immunization rates in the state.

NOTE: A detailed summary of the question responses and the complete transcripts can be obtained at the DOH Immunization Branch.

Reference:
Whitehead, S.J. (2003). Infant immunization: targeting falling coverage. Hawaii Department of Health, Communicable Disease Report, January/February 2003.

Table 1.
Focus Group Questions, Ordered From General to Specific

1. Why do parents bring their babies/children to the clinics/doctors office?
2. Where do parents get information about children's shots?
3. How important are shots to children's health?
4. Where do parents go to get their children the shots?
5. What do parents think about the shots their children get?
6. Do parents not want to get their children shots?
7. Tell me about why parents cannot come to the office/clinic to get shots.
8. Do parents worry about the shots their children receive?
9. Tell me about what gets in the way of parents getting their children their shots on time, according to the schedule.
10. What would make it easier for parents to get their children their shots?
11. Of all the things that you mentioned that make it hard for parents to get their children their shots, which one is at the top of the list?
12. Is there any other important issue about childhood shots that we did not talk about today?

Submitted by Victoria Niederehauser, DrPh, APRN, PNP, Assistant Professor, University of Hawai`i School of Nursing.

Table 2. Demographics of the Participants

Demographics	No.	%
Gender		
Male	6	9.4
Female	58	90.6
Marital Status		
Married	40	62.5
Divorced	1	1.6
Separated	2	3.1
Single	21	32.8
Parent Education Level		
Less than High School	1	1.6
High School Diploma	20	31.3
Some College	22	34.4
College Graduate	19	29.7
Insurance		
Quest	29	45.3
HMSA	14	21.9
Private	9	14.1
None	4	6.3
Aloha Care	3	4.7
Kaiser	2	3.1
Tricare	1	1.6
Ethnicity		
White	16	25.8
Filipino	8	12.9
Asian/White/Hawaiian	6	9.7
Hawaiian	4	6.5
Japanese	4	6.5
White/Hawaiian	4	6.5
Portuguese Mix	3	4.8
Chinese	3	4.8
Hispanic	3	4.8
Asian/Hawaiian	3	4.8
Pacific Islanders	3	4.8
Black	2	3.2
White/Asian	2	3.2
Asian Mix	1	1.6

Hawai`i Influenza Sentinel Surveillance Program

The Hawai`i Department of Health (DOH) would like to encourage more physicians to participate in the Influenza Sentinel Surveillance program in order to enhance detection capability of new strains with pandemic potential such as avian influenza. Sentinel physicians report "influenza-like illness" to the Centers for Disease Control and Prevention each week and collect specimens for virus strain identification. Physicians of any specialty are eligible to be influenza sentinel physicians or sites. The collected data is critical for monitoring the impact of influenza and can be used to guide prevention and control activities, vaccine strain selection, and patient care. Hawai`i's distinctive geographic location and travel industry increases Hawai`i's susceptibility to novel influenza strains and unique influenza activity. Hawai`i's influenza season is year-round and often includes influenza B strains unlike some of its mainland counterparts. To become a sentinel site for the 2004-05 influenza season, contact the DOH Influenza Surveillance Program at (808) 586-4586 in Honolulu.

Submitted by Steven Terrell-Perica, MA, MPH, MPA, CDC Senior Public Health Advisor, Hawai`i Immunization Branch, Disease Outbreak and Control Division.

Sasaki Retiring!

Tim and David

David M.Sasaki DVM, MPH, editor of the Communicable Disease Report since 1995 is retiring! Dr. Sasaki has held the position of State Public Health Veterinarian in the Department of Health (DOH) from 1982 to1985 and from 1987 through 2004. During his tenure with the Department of Health he has been significantly involved with zoonotic disease control and prevention, and the education of health care providers, physicians, veterinarians, and other public health specialists as well as the public.

In the early 1980s, he initiated and composed a bimonthly publication entitled "Zoonoses". This publication focused on diseases found in Hawai`i that humans shared with other species. "Zoonoses" always contained in-depth discussions of zoonotic diseases as well as brief reports. It was printed on green paper and still can be found in personal and public libraries.

Since 1995 he has been the editor-in-chief of this DOH bi-monthly physician newsletter, "Communicable Disease Report. This publication was mailed to primary care providers, veterinarians and government officials statewide, nationally and internationally, before its transfer to the current online pdf format. It had a circulation of 4500 copies. As chief editor, he has taken responsibility for encouraging public health professionals to write articles that described the work of the Communicable Disease and Disease Outbreak and Control divisions, the State laboratory, other divisions and branches of the DOH, military and affiliated agencies with interest in communicable diseases. The backbone of the publication was often based on a written report of the division's monthly epidemiology seminar presentations, which Dr. Sasaki also organized for the Department.

At the request of a former Director of Health, Jack Lewin, Sasaki in 1987 formed and has chaired the Leptospirosis Ad-Hoc Committee throughout its tenure, the longest continuously active ad-hoc committee supported by the DOH. The community-based committee has sponsored research, health education and consultative services to groups locally, nationally and internationally. In addition, through his work in the DOH, he was instrumental in the publication of 28 articles in peer-reviewed medical journals, and a book chapter. He is also active in national veterinary and international leptospirosis organizations.

The DOH will miss his expertise in the epidemiology of zoonotic diseases, consistent efforts in acquiring articles of interest to Hawai`i, his ability to meet his own deadlines, and network with other editors, format designers, printers, and more recently various IT specialists. We wish him a relaxing and refreshing retirement, but expect to continue to meet him involved in community-based public health issues. He looks forward to spending more time with his seven year-old son who naturally switch-hits in baseball.

Submitted by Mona R. Bomgaars, M.D., M.P.H., Co-editor, Communicable Disease Report, and Emeritus Chief, Communicable Disease Division and Hansen's Disease Branch.

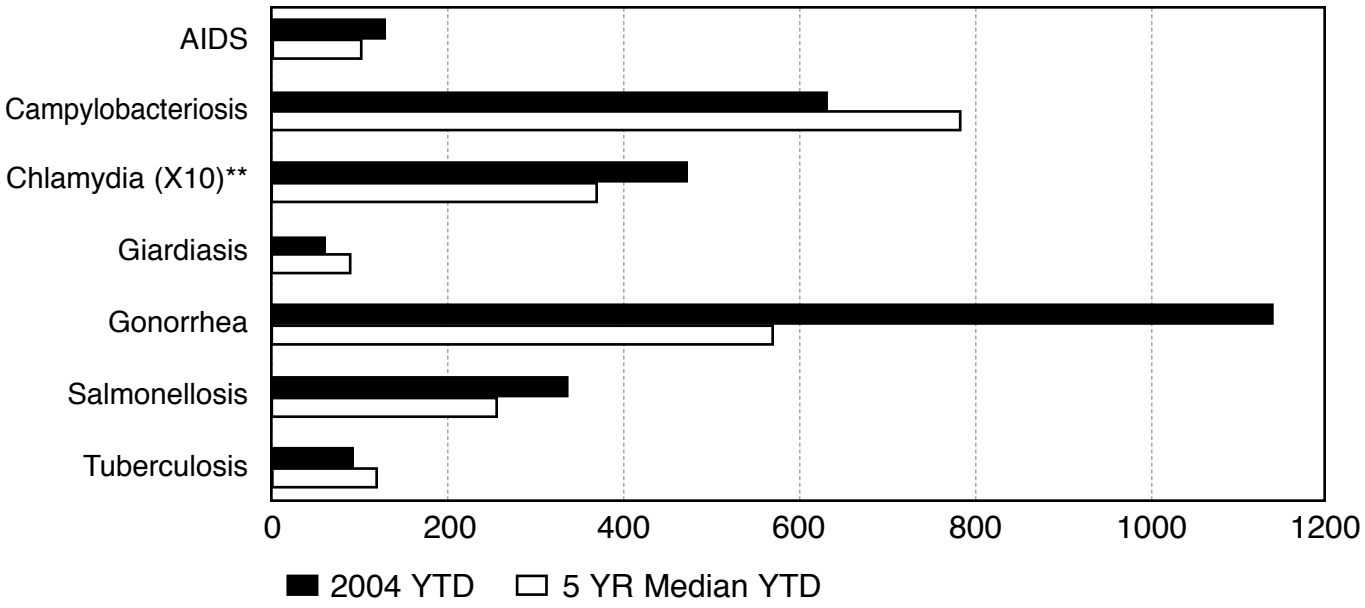
Editor's Note. When I started with the DOH in 1982, Dr. Bomgaars was my supervisor as Chief of the Communicable Disease division. My first assignment was to conduct a cost-benefit analysis of the rabies quarantine program, and to publish the results. I received invaluable assistance with the study from my predecessor and mentor, Dr. John Gooch, who was acting Chief of the Epidemiology Branch following the untimely passing of then Chief, Dr. Ned Wiebenga.

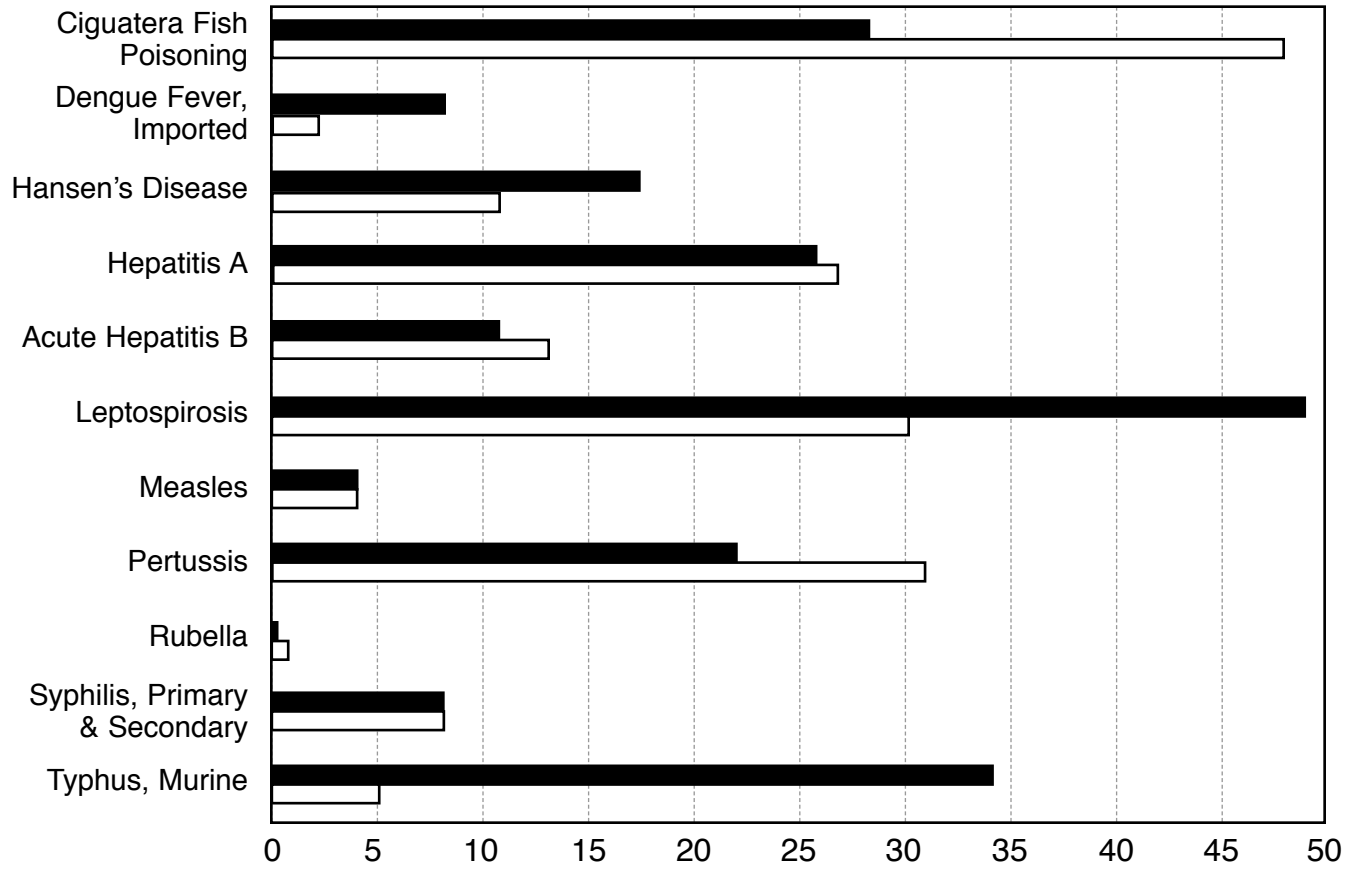
After completing the study and drafting the article for publication, it went between Dr. Bomgaars office and mine 10 times before she finally approved it for submission. It was mentally exhausting, but it turned out to be an invaluable education in scientific writing. It has provided me an important communication skill that has been continually used throughout my career and has been illustrated in the editing of this publication. To Dr. Bomgaars, the late Drs. Gooch, Henri Minette and Robert Worth, veterinarians and physicians and other members of the community who have helped me and supported my work over the years, I will be always grateful. My success has been a reflection of their support and encouragement.

David M. Sasaki, D.V.M., M.P.H.

Communicable Disease Surveillance

Selected Diseases by Date of Report*
Hawai'i, 2004 Year-to-date Through November





* These data do not agree with tables using date of onset or date of diagnosis.
** The number of cases graphed represent 10% of the total number reported.